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DOCUMENT-IDENTIFIER: US 5712626 A

TITLE: Remotely-operated self-contained  
electronic lock security system assembly

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Detailed Description Text - DETX (31):

The time-varying programmed changes in the frequency of the carrier is commonly called frequency hopping, and is normally accomplished in an electronic circuit called a frequency synthesizer (discussed below). For successful decoding of a set of given information, the transmitter and receiver must use the same time-synchronized frequency program. The protocol for such synchronization is quite complicated. However, the present invention utilizes a communication method which eliminates the need for a synchronization protocol. In the present system the frequency program is transmitted to the receiver as part of the transmitted information. Thus, the receiver must be tuned to an initial default frequency of the SSC signal in order for the communication procedure to begin.

Detailed Description Text - DETX (33):

The entrance code is preferably transmitted in segments of eight bits interrupted by eight bits for the next carrier frequency code, however, other numbers of bits might be used. For an eight bit segment, 256 discrete carrier frequencies (between 1 and 40 kHz for IR communication, or 4 and 100 Mhz for RF communication) are used. Those skilled in the art will

recognize that with a larger number of frequencies, the transmission looks more like noise and is more difficult to successfully decipher the code. Each of these carrier frequencies is identified by an eight bit code. During the interval in which the HHC communicates with the EDL, a new frequency code is selected by the HHC at random after the transmission of each eight bit segment of the entrance code. (Only the initial carrier frequency is fixed so that communication between the HHC and the EDL can be established). The random code is selected by choosing an eight bit code and going to a look-up table stored in EPROM which correlates the eight bit code to a frequency. This new frequency is then delivered to the frequency synthesizer 408 of the HHC. The HHC then transmits the eight bits of the entrance code and then eight bits which identify the next carrier frequency to the EDL. The carrier frequency of the HHC changes before the next eight bits of the entrance code and the next carrier frequency code are transmitted. The transmission is concluded when eight groups, each group being comprised of eight bits of the entrance code and eight bits of the next carrier frequency, are transmitted.

*handheld  
Door lock*

#### Detailed Description Text - DETX (34):

The EDL decodes the transmitted information using the coded carrier frequencies and converts it into a digital code. The EDL must have an identical look-up table correlating carrier frequencies with eight bit codes to that look-up table found in the HHC, or the information will not be properly decoded by the EDL. Thus, not only is the EDL protected by the 64 bit entrance code, but it is also protected by the random combination of carrier frequencies over which the entrance code may be transmitted.